

Inspect Flowlines Annually



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 407

Applicable sector(s):

Production Processing Transmission and Distribution

Compressors/Engines
Dehydrators
Pipelines
Pneumatics/Controls
Tanks
Valves
Wells
Other

Partners reporting this PRO: Texaco (now ChevronTexaco Corporation)

Other related PROs: Use of Clock Spring® Repair, Conduct DI&M at Remote Facilities, Use Ultrasound to Identify Leaks, Use of Improved Protective Coating at Pipeline Canal Crossings

Technology/Practice Overview

Description

All gas wells have flowlines that transport natural gas to transmission compressor stations or processing plant booster stations. These flowlines are normally buried and can leak methane as a result of internal corrosion (particularly in wet, sour gas service), external corrosion, and abrasion from thermal cycling. Methane leakage from flowlines is one of the largest sources of emissions in the gas industry.

One partner has instituted a program of annual flowline inspection to reduce gas losses. Underground leaks may be discovered using ultrasound detectors, digital radiography, or through the temporary introduction of an odorant into the gas stream. Regular repair of underground leaks will prevent small leaks from increasing in volume over time.

Operating Requirements

Walking inspections are more effective when using enhanced leak detection devices or odorants.

Applicability

This applies to all flowlines in the production sector.

Methane Savings: 58 Mcf per year

Costs

Capital Costs (including installation)

<\$1,000 \$1,000 – \$10,000 >\$10,000

Operating and Maintenance Costs (annual)

<\$100 \$100-\$1,000 >\$1,000

Payback (Years)

0–1 1–3 3–10 >10

Benefits

Reducing methane emissions was the primary benefit of the project.

Methane Emissions Reductions

The methane emissions reductions are based on eliminating the average amount of methane emissions from production underground pipelines—53.2 scf per day per mile—as derived from the EPA/GRI study “Methane Emissions from the Natural Gas Industry, Vol. 2.” One partner has reported natural gas emissions reductions of 68 Mcf per year.

Economic Analysis

Basis for Costs and Savings

The savings of 58 Mcf per year are based on finding and repairing leaks (with the industry average leakage rate) in 3 miles of underground pipeline.

Discussion

The capital cost assumes the purchase of an ultrasound detector for approximately \$250. Operating costs include the labor needed to walk the pipelines with the detectors and the labor and materials needed to repair the pipelines. The labor cost for one month per year of inspection is about \$5,000. According to *Oil and Gas Journal* (October 9, 1995), the costs per repair using a type B steel sleeve is about \$680 (in 2001 dollars), including labor.